CLAIMS

We Claim:

1. A device to ensure the uniform collapse of a prosthesis, wherein the prosthesis comprises at least one layer of biocompatible material, comprising:

a means to stabilize the prosthesis, wherein the prosthesis can be incrementally axially rotated; and

a means to manipulate the layer of biocompatible material at at least one distinct point on the prosthesis to produce an alteration on the surface thereof.

2. A device according to claim 1, further comprising a means to couple the stabilizing means with the manipulating means, wherein the coupling means is adapted to rotate the stabilizing means following the formation of at least one alteration on the surface of the prosthesis.

3. A device according to claim 1, further comprising a force means coupled to the manipulating means to produce energy for use thereof in producing the alteration.

4. A device according to claim 3, wherein the force means is selected from the group consisting of pneumatic, hydraulic and mechanical.

5. A device according to claim 1, wherein the at least one alteration comprises a set of alterations that are simultaneously produced along at least one axis of the prosthesis.

6. A device according to claim 5, wherein the set of alterations is produced along a longitudinal axis of the prosthesis.

7. A device according to claim 5, wherein the set of alterations is produced along a circumferential axis of the prosthesis.

8. A device according to claim 5, wherein the set of alterations is produced along more than one axis of the prosthesis.

9. A device according to claim 5, wherein the set of alterations is produced on both surfaces of the layer of biocompatible material.

10. A device according to claim 1, wherein the prosthesis further comprises a stent, having a luminal and abluminal surface, wherein at least one surface is covered by the layer of biocompatible material.

11. A device according to claim 10, wherein the luminal and abluminal surfaces of the stent are each covered by at least one layer of biocompatible material.

12. A device according to claim 1, wherein the biocompatible material is expanded polytetrafluoroethylene.

13. A device according to claim 1, wherein the stabilizing means comprises a grooved mandrel, having a diameter approximately equal to but less than an inside diameter of the prosthesis to establish an interference fit when positioned therein.

14. A device according to claim 1, wherein the manipulating means comprises a pressing comb.

15. A device according to claim 14, wherein the prosthesis further comprises a stent having a plurality of articulations arranged longitudinally in rows about its circumference, wherein the pressing comb has teeth spaced a distance corresponding to the distance between successive longitudinal articulations.

16. A device according to claim 1, wherein the manipulating means comprises a marking wheel and a shaft combined therewith.

17. A method for preparing an implantable prosthesis for loading into a delivery sheath, wherein the prosthesis comprises a stent with at least one layer of biocompatible material attached thereto, comprising the steps of:

altering the surface of the biocompatible layer; and

collapsing the prosthesis for loading into the delivery sheath.

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18. A method according to claim 17, further comprising the step of inserting a grooved mandrel of appropriate diameter into the prosthesis, wherein an interference fit between the mandrel and the prosthesis is established;

19. A method according to claim 18, wherein the altering step further comprises the steps of:

forming a first set of alterations in the biocompatible layer along a longitudinal axis of the prosthesis at a first axial position aligned with a first groove in the mandrel;

rotating the prosthesis axially in an incremental fashion, wherein subsequent sets of creases are created along the longitudinal axis of the prosthesis at a plurality of axial positions, each aligned with grooves in the mandrel, until the prosthesis has been rotated 360° from the first axial position; and

removing the prosthesis from the mandrel.

20. A method according to claim 17, wherein the altering step further comprises contacting the prosthesis with a pressing comb.

21. A method according to claim 20, wherein the prosthesis further comprises a stent having a plurality of articulations arranged longitudinally in rows about its circumference, wherein the pressing comb has teeth spaced a distance corresponding to the distance between successive longitudinal articulations and wherein the teeth are adapted to create an alteration in the biocompatible layer between each successive longitudinal articulation.

22. A method according to claim 17, wherein the altering step further comprises contacting the prosthesis with a marking wheel.